and a thermal shock is applied to the ceramic honeycomb structure. The central portion of the ceramic honeycomb structure becomes hot and is going to expand at this time. However, it cannot expand because the outer circumferential portion is at normal temperature. Therefore, internal pressure is applied, and a tensile load is applied to the outer wall. Generally, a ceramic is relatively weak against a tensile load, although it is strong against a compression load. Therefore, in the case where a tensile load in an outer circumferential portion due to temperature distribution exceeds rupture strength of a ceramic honeycomb structure, the ceramic honeycomb structure is ruptured. To the contrary, in the ceramic honeycomb structure where the outer circumferential wall portion 3 is subjected to the specific reinforcement of the present invention, a thermal expansion coefficient of the outer circumferential wall portion 3 is larger than that of the inside partition wall portion 5 in a direction of a diameter. In other words, the outer circumferential wall portion 3 is in a compressed state, and stress is applied towards the inside partition wall portion 5. That is, since a tensile load is not applied until a tensile load larger than this stress is applied, the outer circumferential wall portion 3 in a compressed state like the